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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/545,447	04/07/2000	Richard W. Citta	7163	9913

28574 7590 02/11/2004

ZENITH ELECTRONICS CORPORATION
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LINCOLNSHIRE, IL 60069

EXAMINER	
BAYARD, EMMANUEL	

ART UNIT	PAPER NUMBER
2631	6

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/545,447	CITTA ET AL.	
	Examiner	Art Unit	
	Emmanuel Bayard	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-14* is/are allowed.

6)☒ Claim(s) *15-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This is in response to amendment filed on 11/3/03 in which claims 1-38 are pending. The applicant's amendments have been fully considered but they are moot based on the new ground of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 15-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy et al U.S. Patent No 5,517,686 in view of Gardner U.S. Patent No 6,243,476 B1 .

As per claims 15 and 26, Kennedy et al disclose a method of substantially eliminating a ghost of a received main signal and reducing noise enhancement comprising the following steps: a) processing the received main signal and the ghost along n paths to produce n processed main signals and n processed ghosts, wherein the processing along each of the n paths does not substantially eliminate the ghost, wherein n > 3 (see fig.5 elements 1, 2, N and col.7, lines 40-67), and wherein the processing along at least some of the n paths includes shifting data (see fig.5 elements 82, 102 and col.3, lines 45-67 and col.8, lines 1-14); and, b) adding the n processed main signals and the n processed ghosts such that, because of the addition of the n processed main

signals and the n processed ghosts, the ghost of the received main signal is substantially eliminated (see fig.5 element 76 and col.8, lines 4-5).

However Kennedy et al does not teach wherein each of the n paths includes a corresponding finite filter.

Gardner teaches wherein each of the n paths includes a corresponding finite filter (see fig.14 elements 300L, 300R col.14, lines 45-67 and co.15, lines 1-10).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Gardner into Kennedy as to minimize the interfering effects of crosstalk as taught by Gardner (see col.15, lines 38-40).

As per claims 16, 24, 35 the method of Kennedy would include the step of down sampling data in at least some of the n paths as to reduce and minimize the noise effects of the different antennas.

As per claims 17, 25, 27, 34 the method of Kennedy does include the step of applying a spectral transformation prior to step a) (see col.4, lines 33-36) .

As per claims 18-23, 28-33, the method of Kennedy would include the step of c) applying pre-processing coefficients to the received main signal and the ghost prior to step a) as to reduce and minimize the noise effects of the different antennas.

As per claims 36-37, the method of Kennedy does include wherein n is an odd integer, wherein half of the n - 1 data shifters shifts data in the data blocks to the left, and wherein half of

the n - 1 data shifters shifts the data in the data blocks to the right (see fig.5 and col.3, lines 45-65 and col.6, lines 45-46).

As per claim 38, the method of Kennedy does include wherein n > 4 (see fig.5).

Allowable Subject Matter

4. Claims 1-14 are allowed over the prior art of record.

5. The following is a statement of reasons for the indication of allowable subject matter: the prior art of Kennedy and Gardner in combination fail to anticipate or render obvious the following recited features: complex multiplying each of the left shifted data blocks by a first set of equalizer coefficients to provide first adjusted output data blocks, wherein step b) is not a full solution to ghosts; c) complex multiplying each of the input data blocks by a second set of equalizer coefficients to provide second adjusted output data blocks, wherein step c) is not a full solution to ghosts; e) complex multiplying each of the right shifted input data blocks by a third set of equalizer coefficients to provide third adjusted output data blocks, wherein step e) is not a full solution to ghosts as recited in claim 1.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lin et al U.S. Patent No 6,175,327 B1 teaches GPS receivers.

Hiramatsu et al U.S. Patent NO 5,906,095 teaches an adaptive array antenna devices.

Miyoshi et al U.S. patent NO 6,477,213 B1 teaches a base station.

Band et al U.S. Patent No 6,222,873 B1 teaches an orthogonal complex spreading method.

Soki U.S. Patent No 6,184,828 B1 teaches a beam scanning antennas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is (703) 308-9573. The examiner can normally be reached on Monday-Thursday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour , can be reached on (703) 306-3034. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3800.

Emmanuel Bayard

Primary Examiner

January 14, 2004